



# Where Children Are Vaccinated: The Importance of School-Located Vaccination

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## Background

In 2009, the New York City Department of Health and Mental Hygiene conducted a school-located vaccination campaign for children in elementary schools to deliver influenza A (H1N1) 2009 vaccine.

Children were also able to receive both H1N1 and seasonal vaccinations through their medical provider.

## Objective

To determine the number, characteristics, and immunization history of children vaccinated through a school-located vaccination (SLV) program versus provider offices.

## Methods

**Data Source:** Data on children who received H1N1 and other vaccinations were obtained from NYC's Citywide Immunization Registry (CIR), a central electronic system for tracking the immunization status of individual children.

## Inclusion criteria:

- Children 4-10 years of age at the time of the first H1N1 immunization administered between October 1, 2009 and March 31, 2010.
- Children with an H1N1 immunization who also had at least one additional immunization recorded in the CIR.
- Children with H1N1 doses received either at providers offices or at a school.

## Analysis:

Comparison of number and % of children in each setting:

- Vaccinated for influenza for the first time at school or provider offices.
- Vaccinated with seasonal flu this season and previous seasons.
- Up-to-Date for their childhood immunizations and mean number of immunizations per child.
- Eligible for Vaccines For Children (VFC) program which served as a proxy for socioeconomic status.

## Results

**Table 1. Children immunized with influenza A (H1N1) 2009 vaccine by location of 1st dose, immunization coverage status and VFC eligibility**

|   | School-located vaccination (n=106,839) |     | Provider offices (n=132,829) |     |
|---|--|-----|------------------------------|-----|
| Total children 4-10 immunized with H1N1 and had one additional shot | 84,412                                 |     | 129,137                      |     |
| Immunized with seasonal flu -- 09-10 season                         | 26,557                                 | 31% | 96,328                       | 75% |
| Immunized with seasonal flu -- 08-09 season                         | 26,859                                 | 32% | 62,592                       | 48% |
| Immunized with seasonal flu ever                                    | 55,178                                 | 65% | 116,066                      | 90% |
| At least one dose given through VFC or CHIP program                 | 55,349                                 | 66% | 99,429                       | 77% |
| Mean number of Immunization records in CIR                          | 22                                     |     | 25                           |     |
| Up to date on childhood immunizations by 35 months                  | 35,877                                 | 42% | 63,403                       | 49% |

\*All comparisons between SLV and provider offices vaccination rates were significant.

**Table 2. Characteristics of those receiving 1st dose of influenza A (H1N1) 2009 in schools versus provider offices**

|  | SLV                                |     |                                   |     | Providers                          |     |                                   |     |
|--|------------------------------------|-----|-----------------------------------|-----|------------------------------------|-----|-----------------------------------|-----|
|  | Immunized with seasonal flu before |     | Never immunized with seasonal flu |     | Immunized with seasonal flu before |     | Never immunized with seasonal flu |     |
|  | 55,178                             |     | 29,234                            |     | 116,066                            |     | 13,071                            |     |
| 4-6 years old  | 24,441                             | 44% | 8,479                             | 29% | 60,685                             | 52% | 5,001                             | 38% |
| 7-10 years old   | 30,737                             | 56% | 20,755                            | 71% | 55,381                             | 48% | 8,070                             | 62% |
| Male   | 27,435                             | 50% | 14,313                            | 49% | 60,201                             | 52% | 6,667                             | 51% |
| Number with at least one vaccine through VFC or CHIP program | 38,958                             | 71% | 16,391                            | 56% | 90,861                             | 78% | 8,568                             | 66% |

\*All vaccination rate comparisons between and within settings were significant except for Male gender.

## Limitations

- Children that did not have at least one record in CIR were excluded. Examination of excluded children showed their history of previous influenza vaccination was similar to included children.
- Children in the SLV program were more likely to fail to match an existing immunization record in CIR. This consequently led to more children in the SLV group being excluded from analysis than the provider offices group (21% vs. 3%).
- Children that received vaccination from both schools and providers were excluded. However, this represented only a small number of children overall (6,319).

## Results

- Relative to children receiving influenza A (H1N1) 2009 in provider offices, children vaccinated at schools:
  - Were less likely to have received influenza vaccine in the past (65% vs. 90%).
  - Were less likely to have received influenza vaccine in 09-10 season (31% vs. 75%).
  - Had lower coverage for childhood immunizations (42% vs. 49%).
  - Were less likely to be VFC eligible (66% vs. 77%).
- Children in the SLV setting had similar coverage for seasonal flu in the last 2 seasons (32% and 31%).
- Children in the provider offices had higher rates of seasonal coverage this season vs. the prior season (75% vs. 48%).

## Conclusions

- The SLV program reached children who otherwise may not have been vaccinated and should be explored as a setting for routine vaccine distribution.
- VFC eligibility was associated with higher immunization coverage and the impact of this program on increasing vaccination rates should be explored further.